

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT		1. CONTRACT ID CODE	
2. AMENDMENT/MODIFICATION NO. 01		3. EFFECTIVE DATE 08/29/2009	4. REQUISITION/PURCHASE REQ. NO. CB 090196
5. PROJECT NO. (If applicable) 900265L			
6. ISSUED BY AOC - Procurement Division 2nd & D Streets, SW Room H2-263 WASHINGTON, DC 20515		7. ADMINISTERED BY (If other than Item 6)	
CODE 9901		CODE	
8. NAME AND ADDRESS OF CONTRACTOR (No., street, country, state and ZIP Code)		(X)	9A. AMENDMENT OF SOLICITATION NO. RFP090070
		X	9B. DATED (SEE ITEM 11) 08/17/2009
			10A. MODIFICATION OF CONTRACT/ORDER NO.
			10B. DATED (SEE ITEM 11)
CODE		FACILITY CODE	

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☒ The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offers ☐ is extended, ☒ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing items 8 and 15, and returning ____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment your desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, ☐ is required to sign this document and return ____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
SEE ATTACHED PAGES

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Frederick Witcher, Jr.	
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA By (Signature of Contracting Officer)	16C. DATE SIGNED

Summary Info Continuation Page

Contractor shall furnish all labor, equipment, materials and incidentals to perform interim painting of the U.S. Capitol Dome per the attached Specifications (Sections 000001 - 099000), General Conditions (29 pages), Supplementary Conditions (3 pages), Representations and Certifications (6 pages), Solicitation Conditions (9 pages), Division 1 (33 pages), Davis-Bacon Schedule DC080004 and all attachments.

BASE

Number	Commodity Name	Quantity	Unit of Issue	Unit Price (\$)	Total Cost (\$, Inc. disc)
1	Interim Painting	Total : 1.000000	LT	\$	\$
Description: Includes all work from the top of the Lantern down to the top plate of the Peristyle floor level					

Lump-Sum Price for Base

\$

OPTION 1

Number	Commodity Name	Quantity	Unit of Issue	Unit Price (\$)	Total Cost (\$, Inc. disc)
2	Interim Painting (Option 1)	Total : 1.000000	LT	\$	\$
Description: Includes all exterior and interior work from the top plate of the Peristyle level down to the roof level. The interior skirt work includes stone repointing and painting.					

Lump-Sum Price for Option 1

\$

Lump-Sum Price for All Options

\$

Lump-Sum Price for Base and All Options

\$

C1 SUPPLEMENTAL TEXT

A. This Amendment No. 01 is issued to replace pages with those that have corrections and/or changes made to them as identified by black lines in the right margin. Please replace the following pages with those currently in the solicitation package:

Remove Pages

Page 4 of 49

General Decision Number DC080004

Insert Pages

Page 4 of 49

General Decision Number DC080004

Modification #5, dated 31 JUL 09
NONE

Modification No. 6, dated 14 AUG 09
Paint System Study

B. SITE VISIT INFORMATION

The site visit will be held on **14 SEP 09 at 1:00P.M.** We will meet at the Capitol Visitor's Center (CVC), Room HVC 127. Go to the House side of the CVC Theatre Level Appointment Desk and someone will meet you there. It is recommended that interested parties go the CVC website, <http://www.visitthecapitol.gov/>, for information on what items are not allowed.

Due to the logistics involved and limitations to the number of people allowed in the Dome at one time, it is requested that those intending to attend the briefing and site visit (1) RSVP the Contracting Officer of such intention by COB 9 Sep 09 and (2) advise as to the number of people coming; three (3) tours (if necessary) are scheduled. Please note that a maximum of two representatives from each company may be imposed depending upon the number of companies attending.

C. INFORMATION REGARDING OPTION 1 (LINE ITEM #2) - If awarded, award of this item may not occur until one (1) year after contract award; price this item accordingly.

NOTE:

1. The due date and time for receipt of offers remains October 6, 2009, 1:00 PM.

Attachments

Page 4 of 49, 1 page

General Decision Number DC080004, Modification No. 6 (14 AUG 09), 7 pages

Paint System Study, 25 pages

General Conditions

52.252-2 Sec. I CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

www.gsa.gov or www.arnet.gov

(End of clause)

52.211-12 Liquidated Damages--Construction(Sept 2000)

(a) If the Contractor fails to complete the work within the time specified in the contract, the Contractor shall pay liquidated damages to the Government in the amount of \$1,446.00 for each calendar day of delay until the work is completed or accepted.

(b) If the Government terminates the Contractor's right to proceed, liquidated damages will continue to accrue until the work is completed. These liquidated damages are in addition to excess costs of repurchase under the Termination clause.

(End of clause)

52.223-3 Alt I Hazardous Material Identification and Material Safety Data (Jan 1997)- Alternate I (July 1995)

(a) "Hazardous material," as used in this clause, includes any material defined as hazardous under the latest version of Federal Standard

No. 313 (including revisions adopted during the term of the contract).

(b) The offeror must list any hazardous material, as defined in paragraph (a) of this clause, to be delivered under this contract. The hazardous

material shall be properly identified and include any applicable identification number, such as National Stock Number or Special Item Number. This information shall also be included on the Material Safety Data Sheet submitted under this contract.

Material (If none, list None)	Identification No.

(c) This list must be updated during performance of the contract whenever the Contractor determines that any other material to be delivered

under this contract is hazardous.

(d) The apparently successful offeror agrees to submit, for each item as required prior to award, a Material Safety Data Sheet, meeting the

requirements of 29 CFR 1910.1200(g) and the latest version of Federal Standard No. 313, for all hazardous material identified in paragraph

(b) of this clause. Data shall be submitted in accordance with Federal Standard No. 313, whether or not the apparently successful offeror is

the actual manufacturer of these items. Failure to submit the Material Safety Data Sheet prior to award may result in the apparently successful offeror being considered nonresponsible and ineligible for award.

(e) If, after award, there is a change in the composition of the item(s) or a revision to Federal Standard No. 313, which renders incomplete

or inaccurate the data submitted under paragraph (d) of this clause, the Contractor shall promptly notify the Contracting Officer and

General Decision Number: DC080004 08/14/2009 DC4

State: District of Columbia

Construction Type: Building

County: District of Columbia Statewide.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Modification Number	Publication Date
0	06/12/2009
1	06/19/2009
2	06/26/2009
3	07/03/2009
4	07/10/2009
5	07/31/2009
6	08/14/2009

ASBE0024-007 10/01/2008

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR.....	\$ 29.18	14.18

Includes the application of all insulating materials,
protective coverings, coatings and finishes to all types of
mechanical systems

ASBE0024-008 10/01/2008

	Rates	Fringes
ASBESTOS WORKER: HAZARDOUS MATERIAL HANDLER (REMOVAL FROM MECHANICAL SYSTEMS, WHICH WILL NOT BE REPLACED OR SCRAPPED)	\$ 17.85	6.60

BRDC0001-002 05/04/2009

	Rates	Fringes
BRICKLAYER.....	\$ 26.31	7.11

CARP0132-008 05/01/2009

	Rates	Fringes
CARPENTER, Including Drywall Hanging, Formsetting and Carpet/Soft Floor Laying.....	\$ 26.38	7.00
PILEDRIVERMAN.....	\$ 24.48	7.70

CARP1831-002 04/01/2009

	Rates	Fringes
MILLWRIGHT.....	\$ 29.39	6.55

ELEC0026-016 11/03/2008

	Rates	Fringes
ELECTRICIAN, Including HVAC Temperature Control Installation.....	\$ 36.65	11.45+a

a. PAID HOLIDAYS: New Year's Day, Martin Luther King Jr.'s Birthday, Inauguration Day, Memorial Day, Fourth of July, Labor Day, Veterans Day, Thanksgiving Day, the day after Thanksgiving and Christmas Day or days designated as legal holidays by the Federal Government.

ELEC0026-017 09/01/2008

	Rates	Fringes
ELECTRICIAN: COMMUNICATION TECHNICIAN.....	\$ 24.25	3%+6.87

SCOPE OF WORK: Includes low voltage construction, installation, maintenance and removal of teledata facilities (voice, data and video) including outside plant, telephone and data inside wire, interconnect, terminal equipment, central offices, PABX, fiber optic cable and equipment, railroad communications, micro waves, VSAT, bypass, CATV, WAN (Wide area networks), LAN (Local area networks) and ISDN (Integrated systems digital network).

WORK EXCLUDED: The installation of computer systems in industrial applications such as assembly lines, robotics and computer controller manufacturing systems. The installation of conduit and/or raceways shall be installed by Inside Wiremen. On sites where there is no Inside Wireman employed, the Teledata Technician may install raceway or conduit not greater than 10 feet. Fire alarm work is excluded on all new construction sites or wherever the fire alarm system is installed in conduit. All HVAC control work.

ELEV0010-001 01/01/2009

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 36.07	18.285+a+b

a. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day and the Friday after Thanksgiving.

b. VACATIONS: Employer contributes 8% of basic hourly rate for 5 years or more of service; 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

IRON0005-005 06/01/2009

	Rates	Fringes
IRONWORKER, ORNAMENTAL AND STRUCTURAL.....	\$ 28.83	13.295

IRON0201-006 05/01/2009

	Rates	Fringes
IRONWORKER, REINFORCING.....	\$ 25.20	14.33

LABO0657-015 06/01/2009

	Rates	Fringes
LABORER: Skilled.....	\$ 20.22	5.25

FOOTNOTE: Potmen, power tool operator, small machine operator, signalmen, laser beam operator, waterproofer, open caisson, test pit, underpinnig, pier hole and ditches, ladders and all work associated with lagging that is not expressly stated, strippers, operator of hand derricks, vibrator operators, pipe layers, or tile layers, operators of jackhammers, paving breakers, spaders or any machine that does the same general type of work, carpenter tenders, scaffold builders, operators of towmasters, scootcretes, buggymobiles and other machines of similar character, operators of tampers and rammers and other machines that do the same general type of work, whether powered by air, electric or gasoline, builders of trestle scaffolds over one tier high and sand blasters, power and chain saw operators used in clearing, installers of well points, wagon drill operators, acetylene burners and licensed powdermen, stake jumper, structural demolition.

MARB0002-004 05/01/2009

	Rates	Fringes
MARBLE/STONE MASON.....	\$ 32.63	12.99

INCLUDES pointing, caulking and cleaning of All types of masonry, brick, stone and cement structures

* MARB0003-006 05/01/2009

	Rates	Fringes
TERRAZZO WORKER/SETTER.....	\$ 25.29	9.09

* MARB0003-007 05/01/2009

	Rates	Fringes
TERRAZZO FINISHER.....	\$ 20.48	8.19

MARB0003-008 05/01/2008

	Rates	Fringes
TILE SETTER.....	\$ 25.01	8.82

MARB0003-009 05/01/2008

	Rates	Fringes
TILE FINISHER.....	\$ 20.15	7.97

PAIN0051-014 06/01/2008

	Rates	Fringes
GLAZIER		
Contracts \$2 million and under.....	\$ 25.12	7.46
Contracts over \$2 million...	\$ 27.84	7.46

PAIN0051-015 06/01/2009

	Rates	Fringes
PAINTER		
Brush, Roller, Spray and Drywall Finisher.....	\$ 24.64	7.86

PLAS0891-005 07/01/2009

	Rates	Fringes
PLASTERER.....	\$ 27.00	5.82

PLAS0891-006 05/01/2008

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 27.15	6.47

PLAS0891-007 07/01/2008

	Rates	Fringes
FIREPROOFER		
Handler.....	\$ 11.50	3.93
Mixer/Pump.....	\$ 14.00	3.93
Sprayer.....	\$ 19.00	3.93

Spraying of all Fireproofing materials. Hand application of Fireproofing materials. This includes wet or dry, hard or

soft. Intumescent fireproofing and refraction work, including, but not limited to, all steel beams, columns, metal decks, vessels, floors, roofs, where ever fireproofing is required. Plus any installation of thermal and acoustical insulation. All that encompasses setting up for Fireproofing, and taken down. Removal of fireproofing materials and protection. Mixing of all materials either by hand or machine following manufactures standards.

 * PLUM0005-008 08/01/2009

	Rates	Fringes
PLUMBER		
Apartment Buildings over 4 stories (except hotels).....	\$ 22.66	9.36+a
ALL Other Work.....	\$ 37.67	14.69+a

a. PAID HOLIDAYS: Labor Day, Veterans' Day, Thanksgiving Day and the day after Thanksgiving, Christmas Day, New Year's Day, Martin Luther King's Birthday, Memorial Day and the Fourth of July.

 PLUM0602-008 08/01/2008

	Rates	Fringes
PIPEFITTER, Including HVAC		
Pipe Installation.....	\$ 35.12	14.47+a

a. PAID HOLIDAYS: New Year's Day, Martin Luther King's Birthday, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day and the day after Thanksgiving and Christmas Day.

 ROOF0030-016 05/01/2009

	Rates	Fringes
ROOFER.....	\$ 25.80	8.26

 SFDC0669-002 04/01/2009

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers).....		
	\$ 30.45	15.30

 SHEE0100-015 07/01/2009

	Rates	Fringes
SHEET METAL WORKER (Including HVAC Duct Installation).....		
	\$ 33.19	12.76

 SUDC2009-003 05/19/2009

	Rates	Fringes
LABORER: Common or General.....	\$ 13.06	2.80
LABORER: Mason Tender - Cement/Concrete.....	\$ 15.40	2.85

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(ii)).

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In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and

3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

**REHABILITATION OF THE DOME
PHASES 1b and 1c
Interim Painting
And
Skirt Rehabilitation**

**UNITED STATES CAPITOL BUILDING
WASHINGTON, D.C.**



AOC Projects #900265L & #900265N

Paint System Study

AOC Contract No. AOC8C0066

7 November 2008

Submitted by

**Hoffmann Architects, Inc.
2321 Whitney Avenue
Hamden, CT 06518
203/239-6660**

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Executive Summary

The United States Capitol Dome is composed of cast iron plates secured to cast iron structural members. The iron serves as both structure and envelope protecting the interior from the elements. Much like a bridge the Dome relies on paint systems to prevent deterioration of the base iron. Over its history there have been tremendous changes in the paint industry; from elimination of lead due to known health risks to the limitation of release of volatile organic compounds (VOC's) when painting is preformed. Hoffmann Architect's tasks, the basis of this reporting, are evaluations and recommendations of paint systems that will protect the cast iron and meet current District of Columbia VOC regulations. This study of available paint systems is twofold; 1) to evaluate and recommend a system appropriate for coating cast iron after the existing lead based paint is removed during a future rehabilitation at the Skirt when repairs are accomplished and 2) to evaluate and recommend a system to over coat the present paint system as an interim maintenance coating.

Systems and Evaluations Our evaluation of possible painting systems included review of past painting research for the Master Plan of the United States Capitol, review of our documentation for the Phase II documents, review of available manufacturer's literature and solicitation of input from four specific manufacturers.

The basis of our requirements for both the Interim Painting and the Skirt Rehabilitation is that the paint must have a good adhesion, and have good resistance to abrasion and resist rust at the bare spots. The systems chosen are known for their bond, resistance to abrasion and are high solids coatings that provide "build" to resist corrosion.

VOC Paint Classification Based on our review of the governing regulations (Ozone Transport Commission rules, OTC) we feel that the Dome repainting should be viewed as the coating category of "Rust Preventative Coatings" with coatings having a maximum VOC of 400 grams/liter. Our recommended systems are well below this limit and generally fall into the category of "Industrial Maintenance Coatings" where coatings are limited to a maximum VOC of 340 grams/liter. A complete comparison of recommended systems is included in Section 4 of this report. The District of Columbia has agreed with our evaluation. A copy of a letter from Mr. Stephen S. Ours, Chief of the Permitting and Enforcement Branch, is included in the appendix.

Recommended Systems For Interim Painting we recommend priming and top coating over the alkyd coating system done in 2000. Three of our recommended systems have acrylic top coats (one is a hybrid siloxane).

For the Skirt rehabilitation we recommend a three coat system with a mastic epoxy type primer, an epoxy or urethane intermediate coat and a fluoropolymer top coat.

Introduction

Interim Painting

The paint on the exterior of the Dome and interior surfaces of the Dome's Skirt is chalking, chipped and cracking at many plate joints. In places, the iron is exposed and corroding. The paint is not adequately protecting the iron shell. The Dome must be repainted to provide protection for the iron.

Skirt Rehabilitation

When the cast iron is completely stripped of the lead based paint in order to achieve needed metal repairs, a new paint system is needed that will provide long term protection for the iron surfaces.

General Painting Discussion

Paint is a thin coating used to decorate, protect, or perform a specialized function on the material it covers.* Further, paint is an engineered mixture of materials that is applied as a liquid film that dries or cures to a hardened finish. Modern coatings are sophisticated formulations created by large manufacturers operating in multi-national markets. Since the last research for coatings on the Dome there has been some consolidation of brands with fewer companies who offer coatings to the market.

Paint system selection has to consider the function, essential paint properties, and specialized paint properties.* Paint properties considered most important to the cast iron include adhesion, abrasion resistance and ability to resist corrosion

The paint on the United States Capitol Dome must be, foremost, a protective coating that functions to cover the cast iron plates, their joints, and the intricate attachments. For the Interim Painting, systems were evaluated for bond to the existing alkyd system and ability to provide protection at bare areas.

For the Skirt Rehabilitation the most critical element for selection is the bond of the primer to the bare cast iron and then the compatibility of over coat systems.

* Weismantel, Guy E., *Paint Handbook*, McGraw Hill, 1981, p. 1-2.

Summary of D.C. Requirements for Release of Volatile Organic Compounds

The District of Columbia Air Quality Division of the Department of Environment has jurisdiction over the release of Volatile compounds from painting products. Hoffmann Architects contacted Stephen Ours of that office to verify the regulations. The regulations currently adopted are the Ozone Transport Commission (OTC) model rules (a copy of the pertinent passages is included in the Appendix). This document has values for maximum release of VOC's based on the type of classification of coating. In our opinion the Dome should be classified much like a bridge; an iron structure that relies on a coating to prevent corrosion and assure structural adequacy and thus safety of the structure.

Based on this we feel that the VOC classification should be "Rust Preventative Coating" (400 g/l). Another possibility with a greater restriction is "Industrial Maintenance Coating" (340 g/l). A final judgment on this classification is needed from the D.C. Air Quality Division. We contacted the District Chief of Permitting and Enforcement, Mr. Stephen S. Ours, spoke to him by phone, and submitted information about the Dome construction for his review and comment.

We mentioned in our telephone review with Mr. Ours that we were concerned that the regulations referenced daily limits in release of volatiles, Section 700. He stated that when enacted there were some discussions about the 15 pound per day limit on release but this was not enacted. He said he would have his staff prepare a written response to explain the ruling.

On 15 September 2008 we received, by mail, a reply dated 11 September 2008. By this letter (a copy is attached in the Appendix) we understand that the intent of the regulations is that if one complies with all the other sections, i.e. 701 through 754, that the daily limits stated in 700 do not apply.

Paint Recommendations

Interim Painting

The exterior surfaces of the Dome were completely stripped of paint by sandblasting in the 1958-60 rehabilitation, a red lead primer applied, and lead based paints used for two finish coats. Since that time and through 1998 lead based products have been used to re coat on a six to eight year cycle.

The last interim painting used an alkyd system with a solvent based primer to bond to the previous overcoat. Those products preformed well, but they no longer conform to the VOC regulations. The paint selected needs to adhere to the present chalked surface and provide protection where the cast iron surfaces are exposed and rusting. The interim painting material is an "overcoat" material and not seen as, nor can it be, a high performance coating. It must have good adhesion, and have good resistance to abrasion and resist rust when applied directly to bare cast iron spots, but it is not intended as a ten year coating.

Manufacturer's formulations vary but generally their recommendation was for an acrylic type top coating that will meet VOC requirements and provide adequate performance as a maintenance coating. The VOC values vary significantly from product to product. In some cases, the primer has a high volatile release value and in others the top coat is the greater number. In most cases the value is below the release for Industrial Maintenance Coatings. One primer, Tnemec, is slightly higher and would fall into the Rust Preventative Coating category.

Although only one manufacturer recommended a system with a modified siloxane, we feel it is a comparable coating to include. The following spread sheet provides comparisons of four manufacturers systems.

Skirt Rehabilitation

The dome of the U.S. Capitol is a cast iron structure, and as such is susceptible to corrosion from exposure to oxygen and moisture, as well as reaction to chemicals and other metals. A majority of the cast iron deficiencies are a result of corrosion and the force of expanding exfoliating metal. It is important therefore that the coating system be selected with care.

Twenty years ago the choice was simple. Coat the iron with pigmented basic lead silico chromate paint¹. However, today we know that lead is highly toxic and its use has been banned. In addition we have recognized that the release of volatile organic compounds into the atmosphere is detrimental to the environment.

The dome is unique; a cast iron structure with massive cast iron skin plates. During the Master Plan and Pilot Studies Hoffmann Architects reviewed restoration work at the New Jersey State Capitol in Trenton, and the Miami County Court House in Troy, Ohio. These projects were similar because they had exterior cast iron plates that were painted, yet not of the scale of the dome. For coating selection comparison we have also chosen to equate it to exposed steel structures such as bridges, and parking garages. These structures have more severe exposures, salts and dynamic loadings, but we feel an appropriate coating for these steel structures would be appropriate for the Dome.

Our research during the Master Plan and prior to Phase I found that the state of the art for such structures was the use of zinc rich primers with an epoxy intermediate coat and a urethane top coat. This system, when properly installed, provides a primer with good bond and sacrificial qualities, a hard durable intermediate coat and a top coat with resistance to chalking and retainage of color for aesthetics. The use of the zinc rich primers is predicated on surface preparation that provides at least a commercial blast finish, SSPC SP-6, or near white blast, SSPC SP-10, if possible. This was also the chosen system for the Ohio dome and the Trenton dome.

Phase I work showed us that the nature of the cast iron surfaces after paint removal did not lend itself to the zinc rich primer. The zinc rich primers were not able to bridge many of the imperfections in the cast iron surfaces. We found that epoxy mastics provided better coverage over the sometimes pitted surfaces. The epoxies need the same level of surface preparation on the iron as the zinc rich primers.

Throughout the dome there are moisture intrusion problems related to joint conditions; butt joints and overlapping joints. These conditions will require some form of sealant to maintain a water tight condition. With the selection of urethane sealant and the urethane top coat the sealant can be placed after the intermediate coat and then the top coat can be applied without worry of compatibility. The ability to incorporate the sealant into this system reinforced our selection of urethane for the Phase two work.

Other possible coatings researched prior to Phase I include: automotive finishes, generally powdered metal finishes, ceramic coatings that promote themselves as insulating and reflective, technology which passivates steel using an organic metal with freely mobile electrons. The auto coatings are generally applied in factory conditions, some at high temperatures, and others using electrostatic bonding techniques. These conditions are not achievable for the dome structure and could only be used for the facade plates, if total disassembly were an option with offsite painting.

Ceramic coatings promote themselves as insulating and reflective, but we feel long term recoating may be a problem.

The German technology passivates steel using an organic metal with freely mobile electrons. This when reviewed in 1998 appeared to be a breakthrough in corrosion protection. We have not been able to find further development or implementation as a product. It was a German

held patent not a Buy America product and has yet to have much of a track record here or abroad. Since our earlier research this technology has not progressed to product production.

With increased emphasis on lowering the release of volatile organic compounds to the atmosphere, we researched acrylic type water based systems similar to the top coats recommended for the interim painting. However there are no compatible primers that are recommended for cast iron substrates. None of the manufacturers recommended going to water based technology and doubted that the cast iron could be adequately protected.

What is new since our last research is that fluoropolymer technology has been developed that can be applied in the field. Previously these high end coatings were factory applied to metal panels and provided excellent color retention and durability. This is an improvement on the urethane top coat technology that we have previously recommended. Fluoropolymers retain color and gloss characteristics longer than all other coatings. We are told that the fluoropolymer is compatible with the urethane sealant. A test panel of fluoropolymer paint was installed at a Boiler Plate Level wall panel during the 2002 repainting and it has retained its color and held up well.

We feel the paint system chosen for Phase I is still appropriate, but the top coat could be improved with the substitution of the fluoropolymer.

The following spread sheet provides comparisons of four manufacturers systems.

1. A 1980's Lead Industries Association promotion touts the use of alkyd based coatings with basic lead silico chromate for New York's Verrazano Narrows Bridge.



Paint Comparison Sheet - Skirt Rehabilitation Painting

Manufacturer	Coat	Product	Generic Type	Solids Content	VOC	DFT	Coverage	Used on Cast Iron Before?	Adhesion ASTM . 1.D3359 2.D4541	Abrasion ASTM D4060	Salt Fog ASTM B117	Comments
Carboline	Primer	Carbomastic 615 HS	Phenalkamine epoxy	80%	170 g/l	5-10 mils	1283 mil sq ft/gal					
	Intermediate Coat	Carboguard 893	Cycloaliphatic Amine epoxy	77%	195 g/l	4-6 mils	1235 mil sq ft		1.	88 mg loss / 1000 cycles	0" rust creep @ 4000 hrs exposure	
	Top Coat	Carboxane 950	Fluorourethane	38%	300 g/l	2-3 mils	609 mils sq ft/gal		2.		1/32" rust creep @ 3000 hrs exposure	
Tnemec	Primer	Chembuild 135	Epoxy Polyamidomine	84%	86 g/l	7-9 mils	1347 milsq.ft/gal		1. 5a rating	122 mg loss / 1000 cycles	1/64" rust creep @ 1500 hrs exposure	
	Intermediate Coat	Endura-Shield II 1075 Semi-gloss	Aliphatic Acrylic Polyurethane	71%	220 g/l	2-5 mils	1132 mis/sq ft/gal		2. 850 psi pull	139 mg loss / 1000 cycles	1/16" rust creep @ 9000 hrs exposure	Ensures that top coat does not chalk. 1071 can be applied directly to the 135 primer but any thin areas or pinholes may cause chalking
	Top Coat	Fluoronar 1071 Semi-gloss	Thermoset Solution Fluoropolymer	60%	317 g/l	2-3 mils	962 mil sq ft/gal		1. 5a rating	134 mg loss / 1000 cycles		
PPG/ Keeler & Long/ Ameron	Primer	Corallon ADS High Build Epoxy Primer	Polymide Epoxy	66.2%	302 g/l	5 mils	1062 sq.ft/gal		2. 1585 psi pull			
	Intermediate Coat	Corallon ADS High Build Epoxy Primer	Polymide Epoxy	66.2%	302 g/l	5 mils	1062 sq.ft/gal		1. 5a rating	96.67 mg loss / 1000 cycles	14.9 mils rust creep @ 2000 hrs exposure	
	Top Coat	Corallon ADS	Fluoropolymer	44.3%	Varies	3 mils	355-474sq.ft/gal		2. 1000 psi pull	96.67 mg loss / 1000 cycles	14.9 mils rust creep @ 2000 hrs exposure	
Duron/ Sherwin Williams	Primer	Duraplate 235	Modified Epoxy Phenalkamine	68%	280 g/l	5 mils	272 sq.ft/gal		1. 5a rating	260 mg loss / 1000 cycles	Meets standard @ 3000VOC depends on gloss selection	
	Intermediate Coat	Macropoxy 646	Polymide Epoxy	72%	250 g/l	5-10 mils	195-490 sq.ft/gal		2. 976 psi pull			
	Top Coat	Fluoro Kem	Fluoropolymer Urethane	48%	340 g/l	2.5 mils	154-297 sq.ft/gal		1. 1037 psi pull	84 mg loss / 1000 cycles	Meets standard @ 65002 part	

VOC Daily Release Limitation (Hypothetical)

If painting were to be restricted to some daily minimum VOC release the following hypothetical worst case could apply.

Maximum Daily VOC Release:	15 lbs./day	Dome Surface Area:	255,000 square feet
Average weight of highest VOC containing product:	2.7 lbs./gallon	Average Product Coverage:	255 square feet / gallon
Daily Volume of highest VOC containing product:	5.5 gallons / day	Volume of product per coat:	1000 gallons
		Required Work Days Per coat:	180 days

Appendix

GOVERNMENT OF THE DISTRICT OF COLUMBIA

District Department of the Environment

Air Quality Division



September 11, 2008

Arthur L. Sanders, AIA, CSI
Senior Vice President
Director, Architecture
Hoffmann Architects, Inc.
2321 Whitney Avenue 2nd Floor
Hamden, CT 06518

RECEIVED
SEP 15 2008
HOFFMANN ARCHITECTS
HAMDEN, CT

RE: United States Capitol Dome Painting Project

Dear Mr. Sanders:

The purpose of this letter is to clarify the compliance requirements of the District of Columbia, Department of the Environment (DDOE), Air Quality Division (AQD) regulations in reference the United States Capitol Dome painting project.

As you know, Sections 749 through 754 of Title 20 of the District of Columbia Municipal Regulations (20 DCMR) are applicable to the painting project. We have reviewed your proposal, submitted by email by Benjamin Robinson of your office on August 8, 2008, and have found that it conforms to those sections.

Also, as you are aware, 20 DCMR § 700, Organic Solvents, has requirements limiting emissions of solvents to 15 pounds of photochemically reactive solvents and 40 pounds of non-photochemically reactive solvents per day, except that 20 DCMR § 700.1 states: "Sources subject to the requirements of § § 701 through 713 shall not be subject to § 700." While this exemption appears to not be applicable in this case, the intent of this regulation is to catch applications to which other portions of the VOC RACT regulation (20 DCMR Chapter 7) are not applicable. Unfortunately, Section 700.1 has not kept up with the addition of new sections of the regulation. As such, AQD is interpreting Section 700 to not be applicable in this case due to the fact that Sections 749 through 754 are applicable.

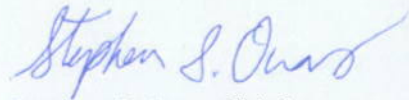
In addition, please note that no air quality construction or operation permit is required for the proposed United States Capitol Dome painting project. Please be aware, however, that this does not exempt the project from complying with Section 749 through 754 and any other applicable regulations such as the nuisance/odor regulation found at 20 DCMR § 903.



Hoffmann Architects, Inc.
United States Capitol Dome Painting Project
September 11, 2008
Page 2

If you have any questions, please call me at (202) 535-1747 or Abraham T. Hagos at (202) 535-1354.

Sincerely,



Stephen S. Ours, Chief
Permitting and Enforcement Branch
SSO: ATH



General Information

- Construction Costs** Statements of opinion of probable construction costs given in this report do not include professional fees for consultants concerning repair procedures, preparation of construction documents, assistance with bidding, construction contract administration, or on-site observation of construction. Construction costs projected in this report represent our opinion as to what the probable costs, in today's dollars, might be to implement the recommendations. They are based on our experience supplemented by published cost estimating sources. They reflect preliminary data and have not been derived from accurate quantities, drawings, details, or specifications. Actual construction costs may therefore vary from the costs in this report.
- Duplication Restrictions** This report is for the sole use of the party for whom the report was prepared. Use of its contents by third parties shall only be with written permission of Hoffmann Architects. Unauthorized use is prohibited and shall release Hoffmann Architects from any and all liability associated with such use. Reproduction of this document, except by the party for whom it was prepared for its own internal use, shall be by written permission of Hoffmann Architects only.
- Construction Use Notice** This report is not intended for any purpose other than to report on conditions observed. Its language and recommendations are not sufficiently detailed or specific enough, nor have any drawings been provided, that could serve as a basis for securing proposals for or executing the recommended work. This survey does not represent that unseen problems may not exist. No representation is made or intended that implementation of our recommendations will place the property in a condition wholly free of all defects or hazards.
-

(1) This test shall be conducted while the solvent cleaning machine is in the working mode and is venting to the carbon adsorber;

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(2) The exhaust concentration shall be determined using a colorimetric detector tube designed to measure a concentration of one hundred (100) parts per million by volume of solvent in air to an accuracy of plus or minus twenty-five (25) parts per million (ppm) by volume; and

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(3) The concentration shall be determined through a sampling port for monitoring within the exhaust outlet that is easily accessible and located at least ~~eight~~ (8) stack or duct diameters downstream and two (2) stack or duct diameters upstream from any flow disturbance such as a bend, expansion, contraction, or outlet; downstream from no other inlet.

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749 ARCHITECTURAL AND INDUSTRIAL MAINTENANCE COATING – GENERAL REQUIREMENTS

749.1 Sections 749 through 754 apply to any person who supplies, sells, offers for sale, manufactures, applies or solicits the application of any architectural coating on or after January 1, 2005 within the District of Columbia, except as provided in §751.

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749.2 For purposes of §§749 through 754 and of any definitions in §799 applicable to §§749 through 754 the District incorporates by reference rules and test methods from the United States Environmental Protection Agency (U.S. EPA), the Code of Federal Regulations (CFR), the California Air Resource Board (CARB), the South Coast Air Quality Management District (SCAQMD), the Bay Area Air Quality Management District (BAAQMD), and the American Society for Testing and Materials (ASTM), where specifically cited. These materials are incorporated in their versions current as of January 1, 2004, unless otherwise indicated in §§749 through 754 and 799.

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749.3 Each part of §§749 through 754 shall be deemed severable, and in the event that any part is held to be invalid, the remainder shall continue in full force and effect.

750 ARCHITECTURAL AND INDUSTRIAL MAINTENANCE COATING – STANDARDS

750.1 No person shall manufacture, blend, supply, sell, offer for sale, apply or solicit the application of any architectural coating with a VOC content in excess of the corresponding limit specified in Table I of this section, except as provided in subsections 750.2, 750.3, 750.8, and 750.10.

750.2 The most restrictive VOC content limit shall apply if anywhere on the container of any architectural coating, or any label or sticker affixed to the container, or in any sales, advertising, or technical literature supplied by a manufacturer or anyone acting on their behalf, any representation is made that indicates that the coating meets the definition of or is recommended for use for more than one of the coating categories listed in Table I of this section. This provision does not apply to the following coating categories:

- (a) Lacquer coatings (including lacquer sanding sealers);
- (b) Metallic pigmented coatings;
- (c) Shellacs;
- (d) Fire-retardant coatings;
- (e) Pretreatment wash primers;
- (f) Industrial maintenance coatings;
- (g) Low-solids coatings;
- (h) Wood preservatives;
- (i) High-temperature coatings;
- (j) Temperature-indicator safety coatings;
- (k) Antenna coatings;
- (l) Antifouling coatings;
- (m) Flow coatings;
- (n) Bituminous roof primers;
- (o) Specialty primers, sealers, and undercoaters;
- (p) Thermoplastic rubber coating and mastic;
- (q) Calcimine recoaters;
- (r) Impacted immersion coatings;
- (s) Nuclear coatings; and
- (t) Concrete surface retarders.

750.3 A coating manufactured prior to the effective date specified for that coating in Table I of this section, may be sold, supplied, or offered for sale after the specified effective date. In addition, a coating manufactured before the effective date specified for that coating in Table I of this section may be applied at any time, both before and after the specified effective date, so long as the coating complied with the standards in effect at the time the coating was manufactured. This subsection does not apply to any coating that does not display the date or date code required by §752.1(a).

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750.4 All architectural coating containers used to apply the contents therein to a surface directly from the container by pouring, siphoning, brushing, rolling, padding, ragging, or other means, shall be closed when not in use;

- (a) These architectural coatings containers include, but are not limited to, drums, buckets, cans, pails, trays, or other application containers; and
- (b) Containers of any VOC-containing materials used for thinning and cleanup shall also be closed when not in use.

750.5 No person who applies or solicits the application of any architectural coating shall apply a coating that is thinned to exceed the applicable VOC limit specified in Table I of this section.

750.6 No person shall apply or solicit the application of any rust preventive coating for industrial use, unless such a rust preventive coating complies with the industrial maintenance coating VOC limit specified in Table I of this section.

750.7 For any coating that does not meet any of the definitions for the specialty coatings categories listed in Table I of this section, the VOC content limit shall be determined by classifying the coating as a flat coating or a non-flat coating, based on its gloss, as defined in §799, and the corresponding flat or non-flat coating limit shall apply.

750.8 A manufacturer, seller, or user may petition the Department to apply an industrial maintenance coating with a VOC content greater than 340 g/l if all of the following conditions are met:

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- (a) The industrial maintenance coating is applied outside the ozone season, normally May through September every year;
- (b) The petition submitted to the Department shall contain the following information, as applicable: job requirements and descriptions, volume of coating, maximum VOC content, and a certification that a complying coating meeting the job performance requirements is not available; and
- (c) If the Department grants written approval, such approval shall contain volume and VOC limit conditions. Until written approval is granted by the

Department and received by the petitioner, all provisions of this rule shall apply.

- 750.9 The Department shall not approve any petition under §750.8 if the approvals previously granted by the Department during the calendar year, when combined with the petition under consideration, would result in excess VOC emissions for that calendar year which would be greater than five percent (5%) of the annual emission reduction achieved within the District of Columbia from implementing the January 1, 2005 VOC limit for industrial maintenance coatings. Coatings subject to this provision shall be sold only if an approved petition (or a copy of it) is provided prior to the sale. Coatings subject to this provision shall not be available to the general public.
- 750.10 Notwithstanding the provisions of §750.1, a person or facility may add up to ten percent (10%) by volume of VOC to a lacquer to avoid blushing of the finish during days with relative humidity greater than seventy percent (70%) and temperature below sixty-five degrees Fahrenheit (65°F), at the time of application, provided that the coating contains acetone and no more than five hundred fifty (550) grams of VOC per liter of coating, less water and exempt compounds, prior to the addition of VOC.

Table I. VOC Content Limits for Architectural Coatings.¹

<u>Coating Category</u>	<u>VOC Content Limit</u> (Grams VOC per liter) ²
Flat Coatings	100
Non-flat Coatings	150
Non-flat- High Gloss Coatings	250
<u>Specialty Coatings</u>	
Antenna Coatings	530
Antifouling Coatings	400
Bituminous Roof Coatings	300
Bituminous Roof Primers	350
Bond Breakers	350
Calcimine Recoater	475
Clear Wood Coatings	
• Clear Brushing Lacquers	680
• Lacquers (including lacquer sanding sealers)	550
• Sanding Sealers (other than lacquer sanding sealers)	350
• Varnishes	350

¹ Limits are expressed in grams of VOC per liter of coating thinned to the manufacturer's maximum recommendation, excluding the volume of any water, exempt compounds, or colorant added to tint bases. Manufacturers maximum recommendation means the maximum recommendation for thinning that is indicated on the label or lid of the coating container.

² Conversion factor: one pound VOC per gallon (U.S.) = 119.95 grams per liter.

Concrete Curing Compounds	350
Concrete Surface Retarders	780
Conversion Varnish	725
Dry Fog Coatings	400
Faux Finishing Coatings	350
Fire-Resistive Coatings	350
Fire-Retardant Coatings	
• Clear	650
• Opaque	350
Floor Coatings	250
Flow Coatings	420
Form-Release Compounds	250
Graphic Arts Coatings (Sign Paints)	500
High-Temperature Coatings	420
Industrial Maintenance Coatings	340
Impacted Immersion Coatings	780
Low-Solids Coatings ³	120
Magnesite Cement Coatings	450
Mastic Texture Coatings	300
Metallic Pigmented Coatings	500
Multi-Color Coatings	250
Nuclear Coatings	450
Pre-Treatment Wash Primers	420
Primers, Sealers, and Undercoaters	200
Quick-Dry Enamels	250
Quick-Dry Primers, Sealers and Undercoaters	200
Recycled Coatings	250
Roof Coatings	250
Rust Preventative Coatings	400
Shellacs	
• Clear	730
• Opaque	
	550
Specialty Primers, Sealers, and Undercoaters	350
Stain	250
Swimming Pool Coatings	340
Swimming Pool Repair and Maintenance Coatings	340
Temperature-Indicator Safety Coatings	550
Thermoplastic Rubber Coatings and Mastics	550
Traffic Marking Coatings	150
Waterproofing Sealers	250

³ Units for this coating are grams of VOC per liter (pounds of VOC/gallon) of coating, including water and exempt compounds

Waterproofing Concrete/Masonry Sealers	400
Wood Preservatives	350

751 ARCHITECTURAL AND INDUSTRIAL MAINTENANCE COATING – EXEMPTIONS

751.1 Sections 749 through 754 do not apply to:

- (a) Any architectural coating that is sold or manufactured for use outside of the District of Columbia or for shipment to other manufacturers for reformulation or repackaging;
- (b) Any aerosol coating product; or
- (c) Any architectural coating that is sold in a container with a volume of one liter (1.057 quart) or less.

752 ARCHITECTURAL AND INDUSTRIAL MAINTENANCE COATING – LABELING REQUIREMENT

752.1 A manufacturer of any architectural coating shall list the following information on the coating container (or label) in which the coating is sold or distributed:

- (a) The date the coating was manufactured, or a date code representing the date, shall be indicated on the label, lid, or bottom of the container. If the manufacturer uses a date code for any coating, the manufacturer shall file an explanation of each code with the Department;
- (b) A statement of the manufacturer's recommendation regarding thinning of the coating shall be indicated on the label or lid of the container. This requirement does not apply to the thinning of architectural coatings with water. If thinning of the coating prior to use is not necessary, the recommendation must specify that the coating is to be applied without thinning;
- (c) Either the maximum or the actual VOC content of the coating, as supplied, including the maximum thinning as recommended by the manufacturer;
 - (1) VOC content shall be displayed in grams of VOC per liter of coating; and
 - (2) VOC content displayed shall be calculated using product formulation data, or shall be determined using the test methods and equations in §754.1(a), §754.1 (b) and §754.2;

- (d) In addition to the information specified in §752.1(a), (b), and (c), each manufacturer of any industrial maintenance coating shall display on the label or the lid of the container in which the coating is sold or distributed one or more of the descriptions listed in subparagraphs (1) through (3):
 - (1) "For industrial use only;"
 - (2) "For professional use only;" or
 - (3) "Not for residential use" or "Not intended for residential use;"
- (e) The labels of all clear brushing lacquers shall prominently display the statements "For brush application only," and "This product must not be thinned or sprayed;"
- (f) The labels of all rust preventive coatings shall prominently display the statement "For Metal Substrates Only;"
- (g) The labels of all specialty primers, sealers, and undercoaters shall prominently display one or more of the descriptions listed in subparagraphs (1) through (5):
 - (1) For blocking stains;
 - (2) For fire-damaged substrates;
 - (3) For smoke-damaged substrates;
 - (4) For water-damaged substrates; or
 - (5) For excessively chalky substrates;
- (h) The labels of all quick dry enamels shall prominently display the words "Quick Dry" and the dry hard time; and
- (i) The labels of all non-flat, high-gloss coatings shall prominently display the words "High Gloss."

**753 ARCHITECTURAL AND INDUSTRIAL MAINTENANCE COATING –
REPORTING REQUIREMENTS**

- 753.1 Any manufacturer of clear brushing lacquers shall, on or before April 1 of each calendar year beginning in the year 2005, submit an annual report to the Department. The report shall specify the number of gallons of clear brushing lacquers sold in the

District of Columbia during the preceding calendar year, and shall describe the method used by the manufacturer to calculate District of Columbia sales.

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753.2 Any manufacturer of rust preventive coatings shall, on or before April 1 of each calendar year beginning in the year 2005, submit an annual report to the Department. The report shall specify the number of gallons of rust preventive coatings sold in the District of Columbia during the preceding calendar year, and shall describe the method used by the manufacturer to calculate District of Columbia sales.

753.3 Any manufacturer of specialty primers, sealers, and undercoaters shall, on or before April 1 of each calendar year beginning in the year 2005, submit an annual report to the Department. The report shall specify the number of gallons of specialty primers, sealers, and undercoaters sold in the District of Columbia during the preceding calendar year, and shall describe the method used by the manufacturer to calculate District of Columbia sales.

753.4 Any manufacturer of architectural coating that contains perchloroethylene or methylene chloride shall, on or before April 1 of each calendar year beginning with the year 2005 report to the Department the following information for products sold in the District of Columbia during the preceding year:

- (a) The product brand name and a copy of the product label with the legible usage instructions;
- (b) The product category listed in Table I in §750 to which the coating belongs;
- (c) The total sales in the District during the calendar year to the nearest gallon; and
- (d) The volume percent, to the nearest 0.10 percent, of perchloroethylene and methylene chloride in the coating.

753.5 Any manufacturer of recycled coatings must submit a letter to the Department certifying their status as a recycled paint manufacturer. The manufacturer shall, on or before April 1 of each calendar year beginning with the year 2005, submit an annual report to the Department. The report shall include, for all recycled coatings, the total number of gallons distributed in the District of Columbia during the preceding year, and shall describe the method used by the manufacturer to calculate District of Columbia distribution.

753.6 Any manufacturer of bituminous roof coatings or bituminous roof primers shall, on or before April 1 of each calendar year beginning with the year 2005, submit an annual report to the Department. The report shall specify the number of gallons of bituminous roof coatings or bituminous roof primers sold in the District of Columbia during the preceding calendar year, and shall describe the method used by the manufacturer to calculate District of Columbia sales.

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754 **ARCHITECTURAL AND INDUSTRIAL MAINTENANCE COATING –
TESTING REQUIREMENTS**

754.1 For the purpose of determining compliance with the VOC content limits in Table I in §750, the VOC content of a coating shall be determined by using the procedures described below in paragraphs (a) or (b), as appropriate. The VOC content of a tint base shall be determined without colorant that is added after the tint base is manufactured as follows:

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- (a) With the exception of low solids coatings, determine the VOC content in grams of VOC per liter of coating thinned to the manufacturer's maximum recommendation, excluding the volume of any water and exempt compounds. Determine the VOC content using the following equation:

$$\text{VOC Content} = \frac{(W_s - W_w - W_{ec})}{(V_m - V_w - V_{ec})}$$

where,

VOC content = grams of VOC per liter of coating;
W_s = weight of volatiles, in grams;
W_w = weight of water, in grams;
W_{ec} = weight of exempt compounds, in grams;
V_m = volume of coating, in liters;
V_w = volume of water, in liters;
V_{ec} = volume of exempt compounds, in liters; and

- (b) For low solids coatings, determine the VOC content in units of grams of VOC per liter of coating thinned to the manufacturer's maximum recommendation, including the volume of any water and exempt compounds. Determine the VOC content using the following equation:

$$\text{VOC Content (ls)} = \frac{(W_s - W_w - W_{ec})}{(V_m)}$$

where,

VOC Content (ls) = the VOC content of a low solids coating in grams per liter of coating;
W_s = weight of volatile, in grams;
W_w = weight of water, in grams;
W_{ec} = weight of exempt compounds, in grams;
V_m = volume of coating, in liters.

754.2 To determine the physical properties of a coating in order to perform the calculations in §754.1, the reference method for VOC content is U.S. EPA Method 24, except as provided in §§754.3 and 754.4. An alternative method to determine the VOC content of coatings is SCAQMD Method 304-91 (Revised February 1996). The exempt compounds content shall be determined by SCAQMD Method 303-91 (Revised August 1996). To determine the VOC content of a coating, the manufacturer may use U.S. EPA Method 24, or an alternative method, as provided in §754.3, formulation data, or any other reasonable means for predicting that the coating has been formulated as intended including but not limited to quality assurance checks and record keeping. However, if there are any inconsistencies between the results of a Method 24 test and any other means for determining VOC content, the Method 24 results will govern, except when an alternative method is approved as specified in §754.3. The Department may require the manufacturer to conduct a Method 24 analysis.

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754.3 Alternative test methods demonstrated to provide results that are acceptable for purposes of determining compliance with §754.2, after review and approved in writing by the Department and the U.S. EPA, may also be used.

754.4 Analysis of methacrylate multi-component coatings used as traffic marking coatings shall be conducted according to a modification of U.S. EPA Method 24 in 40 CFR 59, Subpart D, Appendix A. This method has not been approved for methacrylate multi-component coatings used for purposes other than traffic marking coatings or other classes of multi-component coatings;

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754.5 The following test methods shall be used to test coatings subject to the provisions of this section:

- (a) The flame spread index of a fire-retardant coating shall be determined by the ASTM Designation E 84-99, Standard Test Method for Surface Burning Characteristics of Building Materials, (see §799, fire-retardant coating);
- (b) The fire-resistance rating of a fire-resistive coating shall be determined by ASTM designation E 119-98, Standard Test Methods for Fire Tests of Building Construction Materials, (see §799, fire-resistive coating);
- (c) The gloss of a coating shall be determined by ASTM Designation D 523-89 (1999), Standard Test Method for Specular Gloss, (see §799, flat coating, non-flat coating, non-flat - high-gloss coating, and quick dry enamel);
- (d) The metallic content of a coating shall be determined by SCAQMD Method 318-95, Determination of Weight Percent Elemental Metal in Coatings by X-Ray Diffraction, SCAQMD Laboratory Methods of Analysis for Enforcement Samples, (see §799, metallic pigmented coating);
- (e) The acid content of a coating shall be determined by ASTM Designation D 1613-96, Standard Test Method for Acidity in Volatile Solvents and Chemical

Intermediates Used in Paint, Varnish, Lacquer and Related Products, (see §799, pre-treatment wash primer);

- (f) The set-to-touch, dry-hard, dry-to-touch and dry-to-recoat times of a coating shall be determined by ASTM Designation D 1640-95, Standard Methods for Drying, Curing, or Film Formation of Organic Coatings at Room Temperature, (see §799, quick dry enamel and quick-dry primer, sealer, and undercoater). The tack free time of a quick-dry enamel coating shall be determined by the Mechanical Test Method of ASTM Designation D 1640-95;
- (g) The chalkiness of a surface shall be determined using ASTM Designation D 4214-98, Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films, (see §799, specialty primer, sealer, and undercoater);
- (h) The following compounds are exempt from the test methods above and shall be analyzed by the following alternative methods:
 - (1) Compounds that are cyclic, branched, or linear, completely methylated siloxanes, shall be analyzed as exempt compounds for compliance with §754 by BAAQMD Method 43, Determination of Volatile Methylsiloxanes in Solvent-Based Coatings, Inks, and Related Materials, BAAQMD Manual of Procedures, Volume III, adopted November 6, 1996, (see §799, volatile organic compound, and §754.2);
 - (2) Parachlorobenzotrifluoride shall be analyzed as an exempt compound for compliance with §754 by BAAQMD Method 41, Determination of Volatile Organic Compounds in Solvent-Based Coatings and Related Materials Containing Parachlorobenzotrifluoride, BAAQMD Manual of Procedures, Volume III, adopted December 20, 1995, (see §799, volatile organic compound, and §754.2); and
 - (3) Compounds exempt under U.S. EPA Method 24, which shall be analyzed by SCAQMD Method 303-91 Revised 1993), Determination of Exempt Compounds, SCAQMD Laboratory Methods of Analysis for Enforcement Samples, (see §799, volatile organic compound, and §754.2);
- (i) The VOC content of a coating shall be determined by U.S. EPA Method 24 as it exists in 40 CFR Part 60, Appendix A, Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings, (see §754.2);
- (j) Alternatively, the VOC content of coatings may be analyzed by either U.S. EPA Method 24 or SCAQMD Method 304-91 (Revised 1996), Determination

of Volatile Organic Compounds (VOC) in Various Materials, SCAQMD Laboratory Methods of Analysis for Enforcement Samples, (see §754.2); and

- (k) The VOC content of methacrylate multicomponent coatings used as traffic marking coatings shall be analyzed by the procedures in 40 CFR part 59, Subpart D, Appendix A, Determination of Volatile Matter Content of Methacrylate Multicomponent Coatings Used as Traffic Marking Coatings, (September 11, 1998), (see §754.4).

799 DEFINITIONS

- 799.1 The meanings ascribed to the definitions and abbreviations appearing in §199 of Chapter 1 shall apply to the terms and abbreviations in this chapter. In addition the following terms and phrases used in this chapter shall have the meanings set forth in this section unless the text or context of a particular section, subsection or paragraph provides otherwise.

ACP agreement – the document signed by the Department which includes the conditions and requirements of the ACP, and which allows manufacturers to sell ACP products in District of Columbia.

ACP emissions – consist of the following:

- (a) The sum of the VOC emissions from every ACP product subject to an ACP Agreement approving an ACP, during the compliance period specified in the ACP agreement, expressed to the nearest pound of VOC; and
- (b) Calculated according to the following equation:

$$ACP\ Emissions = (Emissions)_1 + (Emissions)_2 + \dots + (Emissions)_N$$

$$Emissions = \frac{(VOC\ Content) \times (Enforceable\ Sales)}{100}$$

where,

- (1) For all products except for charcoal lighter material products:

$$VOC\ Content = \frac{((B - C) \times 100)}{A}$$

A = net weight of unit (excluding container and packaging);